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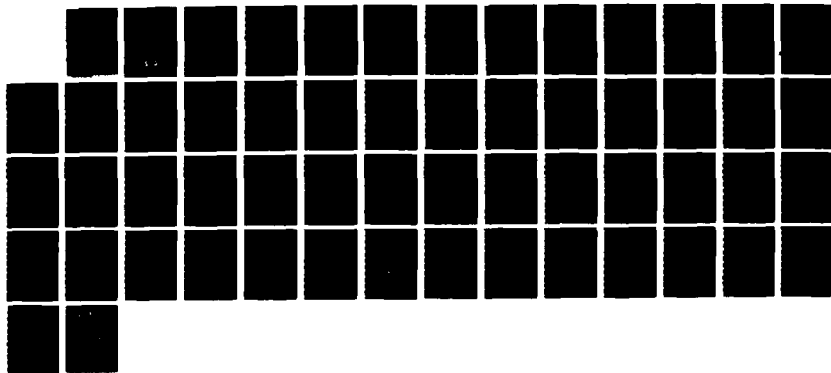
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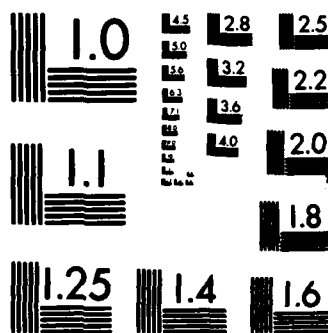
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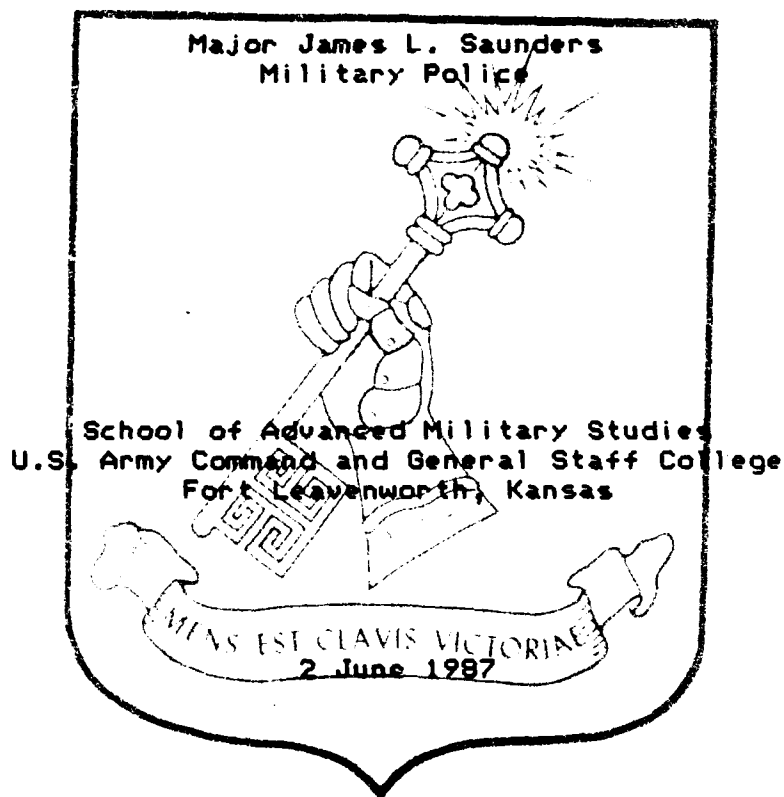
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Combat Power in the Rear:  
Balancing Economy of Force and Risk



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sound, simply out of balance. The principle of economy of force turns on two subordinate tenets. The first, that providing the minimum force in the area of risk necessary to stave off defeat is no less important than the second, concentrating the maximum combat power in the area of decision. For FM 90-14 to be fully functional, it must restore the balance between these tenets. This can be done by allocating a level of firepower to defend the rear commensurate to its threat and adding an offensive element to the doctrine.

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## ABSTRACT

COMBAT POWER IN THE REAR: BALANCING ECONOMY OF FORCE AND RISK by Major James L. Saunders, USA, 49 pages.

This paper challenges the capstone principle of US doctrine for rear battle, economy of force. The paper also seeks to determine if the doctrine accurately reflects the tactics key to successful defense of rear areas in modern war. Case studies from the German Army's defense of its rear areas on the Eastern Front in World War II, refined to consider changes in the modern conditions of war and current Soviet capabilities, are the primary source for successful rear battle tactics.

The study suggests that several issues governing the proper use of economy of force are not well expressed in FM 90-14. Most important among these is that the desire to concentrate combat power forward must be carefully balanced with the need to avoid defeat in the rear. In the study vignettes, contrary to US doctrine, this required some measure of permanent commitment of combat units to the rear to protect critical terrain, or conduct critical operations. Further, while passive security as envisioned in US doctrine was essential to protect key terrain and units, launching aggressive offensive action as often as possible was also necessary to rob the initiative from the forces attacking in the rear. Finally, the case studies disclose that fire support must be integrated throughout the depth of the defense. In some cases, artillery was placed in direct support of the defense of selected critical points. In every case, highly mobile fire support systems were at least in general support, and capable of responding in a rapid, efficient manner.

The study concludes that US doctrine for rear defense would not defeat or significantly delay a modern Soviet attack to our deep rear. Nevertheless, the basic principles of the doctrine are sound, simply out of balance. The principle of economy of force turns on two subordinate tenets. The first, that providing the minimum force in the area of risk necessary to stave off defeat is no less important than the second, concentrating the maximum combat power in the area of decision. For FM 90-14 to be fully functional, it must restore the balance between these tenets. This can be done by allocating a level of firepower to defend the rear commensurate to its threat and adding an offensive capability to the doctrine.

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"The first principle of German rear defense, therefore, was self-defense, by every unit and every man in the East. No special equipment or training was normally available. The German rear area commanders did what they could to preserve their units and to keep the supply lines open to the main forces...

The second principle might be described as "containment" or "denial". The key goal, beyond individual or unit survival, was to deny critical centers, bridges, villages, etc. to the Russians. Rear area units, therefore did not usually take the offensive against Russian troops except in local defensive actions...

The third principle, and probably the one most difficult to implement faithfully, was to keep sight of the main threat. As long as Soviet paratroops and cavalymen failed to over-run critical points, they posed no catastrophic danger to the main elements of 4th Army. The German Armies and divisions thus delegated authority for rear operations to their rear area commanders, sent them combat units when possible, and concentrated their main efforts against the main Soviet threat-- the danger of massive breakthrough."(1)

#### INTRODUCTION

So concludes a recent article from the US Army Combined Arms Center on the successful defeat of the first Russian winter offensive in World War II. Launched with a vengeance from Moscow on December 6, 1941, the offensive sputtered to a halt east of Vyaz'ma in just ninety days-- stopped short of strategic or even operational goals. The article pins much of the success in defusing the Russian offensive to the remarkable steadfastness of the defense in the German rear. Combined attacks by armored columns, paratroopers, and partisans were either defeated outright or at least delayed from reaching critical objectives until German combat units could respond to destroy the threat. The tenacity in the rear allowed the Germans to concentrate their main effort on grinding the

offensive to a halt and again stabilizing the front line. This success, as well as the similarities suggested in scenarios of future US and Soviet conflict, have enticed the US Army to echo in its doctrine the lessons for rear defense it perceives from the German experience.

US doctrine for defense in the rear is outlined in Field Manual 90-14: Rear Battle. First, rear service units must attempt to defend themselves. Military police respond to destroy or delay forces outside the self-defense capability of local units. Combat forces, including fire support units, undertake rear combat operations only when military police can't handle the threat. In FM 90-14, two core principles govern the use of combat forces in rear battle: economy of force and unity of effort.(2) Economy of force means risk will be accepted in the rear to allow combat power to focus on close and deep operations. Unity of effort requires planning for rear battle as an integrated part of the overall offensive or defensive effort. This translates into positioning combat forces forward, but also retaining the capability to deploy combat power to the rear rapidly in case of need.(3) The doctrine states combat forces must be agile, able to anticipate and react to any rear battle threat by moving the necessary forces throughout the width and depth of the rear area.(4) In a nutshell, the doctrine intends to allow a lack of depth in the rear and to compensate for this by building agility into the combat force.

The purpose of this paper is to challenge US doctrine for rear defense. It will look first at the German experience on the Eastern Front in World War II to see if the US Army

correctly identified the tactical principles actually key to the success of the German rear defense. It will also explore the competence with which the doctrine guides economy of force. For proper execution, economy of force must balance two conditions: minimum essential combat power in the area of risk to avoid decisive defeat and maximum allowable combat power in the area of decision. US doctrine for rear defense clearly achieves the second tenet. Whether the doctrine has adequately underwritten the first tenet seems less clear. For agility to off-set depth, defending front line combat forces must have the time to react to a battle in the rear before irreparable damage is done. Therefore, this paper will ask if the doctrine provides that time by allowing an initial tactical defense that can either defeat or significantly delay a modern threat to the rear.

Assessing the implications posed by every threat to the rear can't be done within the scope of this paper. Thus the analysis will focus on defense in the deep rear. There are several reasons for this. In a study titled Warfare in the Enemy's Rear, Otto Heilbrunn noted that the rear could be separated into near and far components. The near rear is that portion of the battlefield reached by forces attacking from their own front line, and supported by a full complement of combined arms.(5) It appears to extend about twenty or thirty kilometers behind the front line, basically the tactical depth of the battlefield.(6) Delineating the rear and main battle is tough in this environment-- in time, space, and forces. It would be difficult not to carry this ambiguity into the study.

On the other hand, the far rear offers a much cleaner environment to test the doctrine. Its range begins about thirty kilometers from the front line and extends through the remainder of the zone of operations. Barring a major collapse of the line, forces attacking the far rear must generally be either infiltrated or recruited from behind enemy lines and capable of operating with relative independence from front line support. These forces-- agents, special operations units, partisans, paratroopers, and now operational maneuver groups (OMGs)-- best represent the threat FM 90-14 was designed to defend against. Of these, the modern airborne threat and the OMG are potentially the most decisive; hence they seem the best forces for testing the competence of the doctrine.

However, the deep rear is not a flawless study paradigm. It invites confusion between tactical and operational issues. This paper is about fighting battles, not conducting operations. It addresses the series of engagements by rear service and military police units-- the initial defending organizations outlined in FM 90-14-- either to defeat or contain the Warsaw Pact forces capable of attacking the deep rear. Still, some overlap is unavoidable. For example pulling combat units from the line to react to a crisis in the deep rear can be an operational maneuver. But, it also affects the ongoing battle in the deep rear in terms of how long the threat must be contained before reinforcements will arrive to assist in its destruction. This paper's focus is the tactical significance of these issues, not their operational implications.

To sum, the paper's thrust will be to probe the basic principles of US doctrine for rear battle. The study's conclusions should tell us: (a) if US doctrine correctly identifies the principles essential to defense of the rear in modern war; and, (b) if the doctrine competently guides economy of force in the rear. In short, it will address the possibility that US doctrine fails to meet the first precondition for an economy of force operation: minimum essential combat power in the area of risk to avoid decisive defeat.

Let's begin the trek by looking first to history for the basic principles of defense in the rear.

## GERMAN REAR DEFENSE:

1941-1944

The Eastern Front in World War II is a tremendous laboratory for the study of rear security in war. The Russians mounted "the greatest irregular resistance movement in the history of warfare," combining all the classic elements of irregular war with modern communications, transportation, and weapons.(1) Moreover, the Soviets also struck with every other means available to them against the German rear: cavalry and armor envelopments, tactical air strikes, and airborne assaults. Yet on the whole the Germans were able to maintain the coherence of their rear areas and continue reinforcement and resupply to the front. The US Army has borrowed generously from the German experience in developing its own rear defense doctrine. Given the risk that the doctrine assumes, perhaps it is worth looking again at some of that history to see if the Army has drawn the right conclusions. Two questions must be asked. How significant was the risk actually imposed by the Soviet rear attacks? What key tactical principles led to the success of the German rear defense?

The rear of the Army Group Center had some of the fiercest fighting in the war. It will provide the backdrop for the analysis. The analysis first looks at a Russian airborne assault at Ujaz'ma in 1942. It provides a case study of German rear service units defending against a Soviet airborne assault to seize an operational objective. It will then look at German defense against guerrillas in the deep rear. Here the analysis will orient on the

anti-partisan tactics of the security divisions assigned to Army Group Center. Unfortunately, the research for this paper uncovered no case studies which cleanly covered the questions posed. However, the answers can be reached by following the evolution of the organization and tactics used in the defense of the deep rear.

#### Vyaz'ma

After grinding Army Group Center's November Offensive against Moscow to a halt, the Soviets unleashed the first in a series of winter offensives on December 6, 1941. Despite impressive initial gains, it soon began to sputter. Russian armored forces lacked the tanks, artillery, air support, leadership, and command and control mechanisms to exploit their initial success properly.(2) The operation stalled short of Smolensk, leaving a major salient extending north through Vyaz'ma to Rzhev.(Map 1) General Georgi K. Zhukov, commander of the Western Front, hoped at least to consolidate his gains by dropping the 4th Airborne Corps into Vyaz'ma to linkup with enveloping armor and cavalry forces, cut the salient along the bottom, and trap the remnants of the German Ninth and Fourth Panzer armies. The first attempt was spoiled by continuous, intense Luftwaffe air strikes on the departure airfields. The bombings destroyed enough of the already sparse transport and so extended the drop schedule that the attack, begun January 27, was curtailed within four days after landing only one brigade. The table was turned. German forces encircled the airborne and armored forces now isolated in the salient. The battlefield had disintegrated into near

chaos, with major gaps in the German lines, most major German LOCs in serious danger of interdiction, and opposing forces within the salient hopelessly intermingled.

Desperate for success, STAVKA planned another more limited airborne operation. The remaining two brigades of the 4th Airborne Corps would drop into the rear of the Fourth Panzer Army, linkup with the 50th (Soviet) Army attacking north and cut the vital Warsaw-Moscow highway. At worst this would ease the pressure on encircled Soviet forces, thus enabling their breakout. Optimally, all forces could converge on Yukhnov (southeast of Vyaz'ma) isolating most of Fourth Army from the Fourth Panzer. (Map 2) The drop began on February 17, lasting through the 23d. It was largely unopposed.

Fourth Army was caught by surprise. Even once identified, the Luftwaffe was already extended beyond the ability to react in any force. Similarly, Fourth Army--hampered by deep snow and a shortage of artillery ammunition--was unable to counterattack. Although successful, the airborne insertion was seriously flawed. Again, insufficient transport greatly extended the drop window. A German report gives insight into the patchwork complexion of the air drop, and the mindset of a Russian leadership truly incapable of balancing mission accomplishment and unacceptable human cost.

"On several occasions parachutists were dropped without parachutes, probably because of a lack of these devices...(General der Panzertruppe a.D. Roettiger states the men were put in sacks filled with straw. This, together with the deep snow, was intended to soften the shock on contact with the ground.)...In order to increase the number of

men transported by air, some men were packed in wooden cases tied to the airfoils of the planes. These men were naturally half-frozen when they were taken out of the cases when the plane landed."(3)

Sloppy navigation and poor procedures for finding and marking drop zones left elements of the Corps hopelessly scattered. Deep snow and sub-zero temperatures delayed assembly until February 23. The 9th Brigade mustered at Svintsovo. The 214th was at Gryada. The remainder of the Corps gathered at Shushmin. Nearly 2,000 of the Corps' 7,373 soldiers were lost to the inefficient insertion.(4) More important, the surprise gained by the drop could not be exploited.

The two brigades of the 4th faced a 30 kilometer march in snow up to a meter deep before linkup with 50th Army. Colonel Kazankin, the Corps commander planned a two pronged assault. The 9th Brigade would attack along a line running through Vyazovets and Kurakino, to destroy the enemy strongpoints of Klyuchi, Pesochnya, and Tynovka. The 214th was to protect the vulnerable left flank, capturing Ivantsova, Tat'yanino and Leonovo in succession, then sliding west to occupy Novaya and Mokhnatka and tie in with the 9th by the evening of the 24th. The First Partisan Regiment was subordinated to the Corps and would cover its rear area. One battalion was held in reserve. Linkup with the 50th would occur along the entire line on the 25th.(Map 2)

The German 57th and 43d Armored Corps were defending along the Moscow-Warsaw highway. Unable to maintain a continuous line, they developed a series of strongpoint defenses, arranged in depth and capable of mutual support.

Armor-infantry teams defended the key terrain south of the highway, thus taking advantage of the mobility it offered. Infantry units supported by tanks defended the critical towns in the north which overwatched the highway, the Fourth Army's main LOC. Rear service units from the divisions of the two corps defended in the towns to the north and west that sat astride the lateral LOCs in the rear area. The towns were heavily fortified, with obstacles emplaced on avenues of approach. Artillery, mortars, and machine gun teams were dispersed through the entire depth.(5)

Plunging forward on the night of 23 February, the 9th Brigade made good progress initially, meeting only light resistance. It was halted after about fifteen kilometers on the outskirts of Prechistoye and Kurakino. The 214th Brigade was quickly ground to a halt after only four or five kilometers by the defenses at Ivantsevo, Kostinki, and Zherdovka. The airborne brigade simply lacked the artillery and mortar support necessary to overcome the strongpoint defenses.(6) The Soviet 50th Army initiated its cooperating attack on the 23d as well, seizing Savinki and Sapovo and cutting the highway in several places.(Map 3)

On the 25th the 9th Brigade remained bogged down, despite a surprise night attack. It fought fiercely to gain only four or five additional kilometers, halted now outside Dertovaya, Platanovka, and Ekaterinovka. The 214th Brigade, making no further progress against Ivantsevo, was ordered to bypass it and move south to tie in with the 9th. The 214th occupied Tat'yanino and Kurikino by day's end, an advance of little

more than four to six kilometers. Meanwhile the Germans counterattacked the Soviet 50th Army, pushing them three or four kilometers south of the highway. Fourth Army held the 50th there for the duration of the battle.

Behind schedule now, Colonel Kazankin tried to speed the linkup by slipping east, bypassing much of the defensive network. On the 26th the 214th Brigade extended flank coverage from south of Ivantsevo along Andronovo, Yurkino, Dertovachka to Gorbachi. The 9th Brigade would bypass Ekaterinova and Pesochnya to concentrate against Klyuchi, the linchpin of the defensive network overwatching the highway. The fight over Klyuchi raged fiercely all day of the 26th and into the night. Artillery from the unthreatened strongpoints and Luftwaffe airstrikes were massed against the Russians as they approached the periphery of the village. The German garrison launched frequent attacks into the surrounding woods with tanks and infantry to disrupt the ability of the Russians to concentrate. Finally, apparently from the loss of air support as night fell, Klyuchi was overrun. The few remaining survivors withdrew to Malyshevka.

On the morning of the 27th the 9th Brigade pushed on toward Malyshevka. It met with the same stiff resistance it encountered at Klyuchi the day before. Moreover, with the defensive line against the 50th Army stabilized, armored reinforcements were moved up along the highway. Lacking sufficient heavy weapons, at the end of an immobile thirty kilometer supply tether, and physically exhausted, the 9th could not prevail. It withdrew to Klyuchi, signalling the end

of the threat to the Warsaw highway. After one more failed sortie at Malyshevka on March 5, the 4th Airborne Corps was effectively contained and then encircled. Though it remained a rear threat for another five months, finally breaking out in late June, the 4th was never again a serious offensive force.

There can be no questioning the steadfastness of the German defense of the Warsaw highway. Tradition has credited this success to the rear service units.

"The thrust from the rear generally first hit the supply train which had already been considerably weakened to reinforce the combat elements at the front. Most of the train consisted of sick men and men who were not fully fit for employment. These soldiers, under their administrative officers and first sergeants, defended the villages they occupied and held off the Russians long enough for the combat troops to be brought up." (7)

It's a romantic notion, but not fully accurate. Not to discredit the admittedly brave and tenacious defense by the rear service units, German success depended foremost on failures in Russian planning and organization, and then upon the airstrikes and mutually supporting system of fires woven into the strongpoint defense.

The Soviets lacked the air transport to conduct an efficient corps-sized airborne assault. It was pointless to attempt an operation so heavily dependent on surprise when forces could not be concentrated before its advantage was already lost. Sloppy drop procedures by the 4th Airborne Corps and its supporting air force element compounded this weakness. Also, the 4th could not be sustained efficiently once on the ground. Lacking systems for aerial resupply of

forward forces, the Soviet airborne was tethered to an airhead thirty kilometers in its rear. With no trucks to linehaul supplies from the airhead, the 4th simply ran out of ammunition at the critical point in the battle for the highway. Most importantly, the airborne force had inadequate firepower to get the job done. So light was Soviet artillery that Germans believed it nonexistent.(8) In fact, the limited artillery present was not even organic to the airborne unit structure. It was provided by the partisans, residue from when the Red Army was overrun in the summer of 1941. Moreover, the Soviets had not worked out procedures to be supported by 50th Army artillery once within range.(9) The result was a decisive advantage in firepower for the Germans pervading every engagement in the attack against the highway.

The Germans strongpointed the key villages on the interior road network leading to the highway. The strongpoints were constructed with fortifications, obstacles, heavy machine gun positions, and mortars. The most critical positions were defended by line combat units, reinforced by tanks. Most importantly, artillery fire was planned in depth so that all positions possessed mutual support and tactical air support was available and directed effectively. In short, the firepower advantage exercised by the Germans was the primary factor in causing the delay and subsequent defeat of the airborne force at Vyaz'ma.

#### Anti-Partisan Warfare

And so the analysis of warfare in the far rear turns from airborne assaults to guerrilla raids. It will explore the

Soviet partisan movement and the evolution of German organization and tactics to counter it. Before moving to the tactics of German rear defense however, some points about Soviet partisan operations merit special emphasis. Interestingly, the Soviet partisan movement was not a spontaneous reaction to the German invasion of Russia. It was a partly coerced and tightly controlled complementary arm of the central party organization.(10) The implications in a type of warfare calling for aggressive, independent small unit action are clear. Furthermore, as the size of bands grew, progressive energy was devoted merely to sustainment.(11) Another point, the partisans generally tried to avoid contact with German soldiers of any ilk.(12) Until the Soviet offensives of 1944 and 1945, partisan combat operations were nearly exclusively directed toward interdicting the vulnerable German LOCs.(Map 4) Moreover, the partisans used harassing, hit and run tactics-- like mining railroad tracks and roads, blowing bridges, or ambushing convoys. In short, sustained or direct combat operations anywhere were shunned unless the partisans could gain overwhelming firepower superiority. For the lightly armed partisans, such situations arose infrequently. With heavy firepower limited at most to mortars and machine guns, the bands had to pick their battles selectively.(13)

Assuming a short war, the Wehrmacht had done little planning to deter guerrilla operations. Organizations below army group level were expected to defend their own rear area. Army groups were assigned three security divisions, consisting

of a line infantry regiment (designated alert regiments), two reserve regiments, a motorized police battalion, and an artillery battalion (probably twelve 105 howitzers).(14) The intent was to keep the army level rear area very shallow, follow closely with the alert regiments to mop up bypassed pockets, then secure lines of communication with the reserve regiments. However, the alert regiments were soon drawn into the line. Lacking manpower for anything more, the rear echelons drew in on their lines of communication leaving the vastness of the interior to the partisans. This gave the partisans time to gain personnel, obtain equipment, and train. It also passed them the initiative totally, allowing the guerrillas to strike with surprise whenever and wherever they wished.

Mounting attacks on lines of communication and complaints from locals harassed by the growing bands forced the Wehrmacht to rethink their initial decisions.(15) Two principles seemed to guide the changes: the need to shore up the combat capability of rear defense units and the need to pursue aggressive offensive action. The rear defense planner, formerly a reserve infantry, intelligence, or quartermaster officer, became a general staff officer with operational experience.(16) To the extent possible, alert regiments were sent from the front-lines back to the security divisions. Additionally the security divisions were supplemented by other combat forces. In Army Group Center combat forces assigned rear duties included SS brigades, Hungarian brigades, native units, and even line combat units. Two regular infantry

divisions were permanently added to Army Group Center's rear contingent in 1942.(17)

Though never equipped to the degree of front line units, combat forces assigned permanent rear protection duties still retained considerable fire power. Lowest level units had heavy machine gun and mortar fire support teams. Moreover, the divisions and independent brigades had organic field and air defense artillery.(18) Air defense artillery systems frequently served in a ground support role, similar to practices in the front-line. Finally, tactical air support was often available. Several squadrons of Stukas might support a major anti-guerilla action.(19)

Equally important, the tactics for rear protection were given a strong offensive component. The first mission still remained securing the LOCs. This was the passive element. The Germans pushed this mission onto native militia units, other non-German forces, or their own reserve battalions. Even with these forces, however, security outposts were moved into the outlying towns and villages to reclaim the countryside and limit the partisans' freedom of action. The active phase of the defense was designed to steal the initiative from the enemy; to find him and fix him, then to kill him. In brief, the tactics turned on superior mobility and firepower.

Hunter-killer teams formed the van of the defense. Borrowing from Marshal Begaud's experience in French North Africa in 1830, the German's established company and platoon-sized detachments, called Jagdkommandos, to infiltrate the swamps and forests, find the partisan bands, and destroy

them.(20) Reinforcing units responded quickly to destroy the partisan bands too powerful for the JagdKommandos. Alert regiments and the combat brigades were detached in company and battalion-sized elements throughout the area as a mobile reserves for the JagdKommandos. They could also respond in lightning fashion when security outposts along the LOCs came under attack. Finally, as the situation permitted, line combat units were infrequently brought into the rear area to conduct major raids and clearing operations.

Firepower was integrated in depth in the passive segment of the defense, much the same as the defense of the Warsaw highway at Vyaz'ma. Naturally, the more critical posts received greater proportions of the heavy weapons support. Fires were generally a reinforcing element of the active defense. The JagdKommandos travelled as lightly as possible, equipped similarly to the partisans they pursued. The reinforcing detachments also emphasized mobility over firepower, depending heavily on their machine gun sections and light air defense guns used in a ground role for a destruction capability.(21)

Mobile heavy weapons for the active defense were provided by tactical air support and a system of ground fire support called "armored trains". Neither was exceptionally functional until the enemy was fixed, either by his own (infrequent) desire to accept sustained combat-- for example a major strike at a key transportation node-- or when pinned by JagdKommandos and reinforcing detachments. Air could respond more quickly (when available), but was less effective because of its

imprecision and inability to sustain massed fires. Moreover, its noise and visibility at long-ranges often served to forewarn partisan camps, allowing their dispersal before German ground forces arrived.(22) Therefore the armored train was the heavy weapon of choice for anti-partisan operations.

"Armored trains" was actually a generic concept for placing heavy firepower on railcars to reinforce critical battles in the rear area quickly.(23) The trains might consist of heavy guns (field and air defense artillery) mounted permanently with the railcar used as a firing platform. They also included lighter guns and tanks which could be fired from the trains or dismounted to move cross-country as required. Frequently smaller armored trains were used to patrol the LOCs and escort critical cargo trains as well as respond to crises.

The Germans used fire support for three basic purposes in rear defense.(24) Machine gun units and the light assault guns were used to establish fire superiority quickly and gain the freedom to maneuver against the more lightly armed partisans. Consequently, they were normally the lead element of reinforcing detachments. Heavy weapons massed fires to close avenues of escape during the initial stages of the engagement (generally without much success). They were also the principal weapon of destruction once the guerrilla band was pinned.

In sum, the Germans painstakingly blended mobility and fires to attempt decisive strokes at the partisans throughout the remotest regions of the West Russian interior. Yet their

success was mixed. It became progressively easier to find and defeat the partisan bands, driving them from their bases and keeping them constantly on the move. It was more difficult to pin and kill the guerrillas. Seldom could sufficient combat power be concentrated rapidly enough to surprise and fix the bands, enabling their destruction.

On the other hand, the guerrillas were more successful at dodging the Germans than posing a serious threat to the rear. Partisan attacks were characteristically unaggressive and poorly planned. For example, in February 1943 the partisans attempted only 170 strikes against the LOCs of Army Group Center. They were successful in cutting the rails in 94 places and blowing 15 bridges(25), this from a 60,000 man force in an area nearly 137,000 square miles containing 2,300 miles of track and 1,700 miles of road.(26) In addition, the engagements often seemed random rather than coherently selected for some synergistic effect. Too, the meaningful points which were attacked weren't systematically followed up to ensure long-lasting destruction. Execution was as flaccid as planning. For example, in October 1943 Central Group's Second Army reported that their rear security forces were able to locate and disarm two-thirds of all road mines in their sector, so poorly were they laid.(27) In sum, the rear threat during most of the war was never what it might have been.

The strength of the German defenses explain much of the Russians' lackluster performance. Critical points along the lines of communication were comprehensively defended with overwhelming fire superiority rapidly available when not

already on hand. It was pointless for the lightly armed Russians to attack them. Equally important, the loss of initiative imposed by the German active defense in the rear area forced intangible but significant damage on the partisans. In an environment where survival was tough in the very best of circumstances, the constant threat of German interdiction with decisively superior firepower had an intimidating effect. Maintaining one's existence was made even more problematic, and thus more energy consuming, by the German offensive sorties. This case is made well by a senior commander in the partisan movement:

"The toughest thing for us had been the defensive battles forced on us by the enemy. Only in these battles has he been able to take advantage of his numerical and technical superiority."(28)

Still, some part of the explanation must lie with failures in the partisan movement itself. Too lightly armed, poorly led for the most part, over-controlled by STAVKA and other non-locals, and subsequently inadequately committed to a most grueling existence, the Soviet guerrilla was a potentially momentous but largely inchoate threat in World War II. Aimed at a key strategic objective, disrupting the vital and highly vulnerable road and rail lines supporting the Wehrmacht in Western Russia, this force of over 140,000 irregulars accomplished little more than occasionally delaying an otherwise highly efficient transport system and tying down a few divisions for security duty that might otherwise have been committed to the Army Group Center front line.

Thus the analysis returns to the questions posed at the beginning. How significant was the risk actually imposed by the Soviet rear attacks? At Vyaz'ma success for the Soviets seemed close at hand. It is hard to imagine a worse set of conditions for the Germans. Yet even then, they were able to delay the march of the 4th Airborne Corps and defeat in detail the attacks of the 4th and the 50th Army. Clearly the level of risk, although alarming, was manageable. In fact, Soviet shortfalls mitigated the degree of risk immensely. The look at the partisan movement suggests similar conclusions.

What key tactical principles led to the success of the German rear defenses? The present study suggests different conclusions from those in the Combined Arms Center article referred to in the introduction. Self-defense seems not to have been even a meaningful factor, much less a guiding principle. Partisans seldom attacked rear service units, and they were the only force to threaten the rear area with any consistency throughout the war. Self-defense was a factor in the defense of Vyaz'ma, but the gaps in the defensive line and multiple encirclements at Vyaz'ma were highly atypical of the normal German situation. Vyaz'ma was in fact one of only two airborne operations of any significant size.(29) Self-defense by rear service units appears to have been very much the exception rather than the rule.

Revealingly, the study also seems to refute the idea in the article that rear service units defended the rear with "no special equipment or training". Combat troops were positioned in the rear area to do most of the truly critical fighting.

For instance, at Vyaz'ma, although short manpower, the key towns in the rear area were still defended by infantry units supported by tanks. Likewise, in the war against the partisans key positions in the rear defense structure were permanently filled by combat soldiers and combat units. Moreover, fire support was integrated in the rear area at every level-- some immediately on hand, more organized to reinforce rapidly. Forces on the ground were given adequate fire support to defend against the reasonably expected threat, staying power if you will. This was true even for the rear service units at Vyaz'ma. Additionally, highly mobile firepower reserves were designed to respond quickly in uncertain situations. They provided the defense a measure of agility.

The study indicates that denial, the second principle in the article, was a necessary but insufficient condition for the German success. The review suggests initiative and offensive action were also essential, even in rear defense. Thus the assertion that "rear area units...did not usually take the offensive against Russian troops except in local defensive actions " is both misleading and harmful. This proved imminently clear when the initiative was initially surrendered by the Germans during the early period of anti-partisan warfare. Considerable effort was expended to restore an offensive capability to their counter-guerrilla tactics.

On the other hand, Vyaz'ma was basically a defensive battle, not unlike one implied in the denial concept

introduced in the article. But it misreads history to deduce this as a German principle for rear defense. It was more a last resort than a preferred tactic. The Germans' first option was to attack the departure and landing airfields with spoiling airstrikes, as in the first airdrop attempt on January 25th. However, the Stukas were not available to counter the second airborne assault. The German's second option was to counter-attack before the airborne forces could concentrate. Deep snows and artillery ammunition shortages prevented this. Defending in place was the only remaining alternative. In sum, it seems appropriate to accept situations when offensive action must be foregone, but dangerous to invite it categorically into your doctrine.

Finally, our study would support that keeping sight of the main effort, the last principle in the article, was critical to the German success. But it was not a tenet adhered to blindly. Admittedly, economy of force was taken in the rear area to allow combat power to be concentrated in the front line. Nonetheless, the rear was not totally stripped of combat capability. Thoroughly integrated fire support systems and selectively placed combat units provided the base for building a competent defense.

In fact, superior German fire support, combined with aggressive offensive action whenever possible, appeared to have been the telling factors in the success of the German rear defense. Defensive units were given sufficient firepower to gain staying power against the enemy, delaying him significantly when not defeating him outright. Additionally,

highly mobile fire support units were designed to respond quickly to unexpected crises and to assist in trapping and destroying an elusive enemy. Finally, highly mobile pursuit teams were developed to track and fix the enemy in the rear, so the superior German firepower could be brought to bear.

The analysis, with an important caveat, supports a premise that forces attacking the far rear generally lack the firepower to be immediately decisive. The success of the defense stemmed only partly from the inherent lightness of the partisans and guerrillas. German prescience in tailoring combat power through the depth of the battlefield was an equally important factor. The Germans effectively employed the classic standards for economy of force: maximum allowable combat power in the area of decision to assure victory, but first minimum essential combat power in the area of risk to stave off possible defeat. The analysis will examine next what the changes in the conditions of battle and Soviet capabilities imply for the ability to accept risk in the far rear.

## THE MODERN THREAT IN THE FAR REAR--

### HOW DECISIVE?

A central theme of rear battle theory is the belief that economy of force is possible in the far rear because troops attacking deep behind enemy lines lack a meaningful strike capability.(1) Factors of mobility and sustainment have traditionally limited both the range and strength of these forces. Guerrillas were foot soldiers. Even airborne troops, once on the ground, were basically footmobile. Also, neither had weapons of any significant destructive power. Heavy weapons and mechanized transport could neither be infiltrated nor regularly resupplied deep behind enemy lines. Moreover, these forces generally operated outside the range of friendly fire support systems. Air power could reach deep enough, but historically was inefficient as the sole source of fire support.(2) Thus, forces operating independently in an enemy's deep rear were seen as lacking the punch to inflict decisive damage in single engagements and battles. It took time and cumulative effects for forces attacking in the far rear to have consequential impact. Conversely, this gave the defending force the opportunity to concentrate combat power in the line, then (as the situation allowed) shift backward periodically to cap enemy actions in the far rear.

The review of the Eastern Front in World War II tends to support this traditional economy of force hypothesis. Still, conditions of modern warfare may call into question its relevance today. The Soviet army may now be capable of striking decisively in the far rear of an opponent. This

portion of the analysis will address that possibility by posing three questions. Are the forces targetted against the deep rear still organically light and immobile once inserted? Are Soviet fire support systems now capable of providing adequate fires to these forces? Can these forces be sustained? To limit the analysis to a reasonable scope, the most decisive of the forces capable of attacking the deep rear, the Soviet airborne division and operational maneuver groups (OMGs), will be the focus.

The Soviets have gone to great lengths to increase the range and punch of airborne units. These units are now a truly mobile combined arms force. Airborne troops move on the ground in air and helicopter transportable BMDs with a range of over 300 kilometers and cruising speed of 80 kilometers per hour. Further the BMD carries a 73mm cannon, two 7.62mm machine guns, and an AT5 spandrel ATGM. Additionally, the airborne division owns organic fire support in the form of the ASU-85 assault gun, Zu-23 ADA gun, the 120mm SP mortar/howitzer(3), the 122mm towed howitzer, and the 122mm BM-21 rocket launcher. Moreover, in comparison to a line motorized rifle division, the airborne division is equipped with twice the number of shoulder fired ATGM and three times the hand held surface to air missiles.(4) The Russians learned the lessons from Vyaz'ma well. However, the force has two weaknesses. First and foremost, the Soviets must have local air superiority to insert the airborne divisions. Secondly, the density of the unit still drives an extended staging and assembly time. Though capable of dropping a division at a time, it is

considered more likely the Russians will drop a reinforced battalion to seize an airhead and then stage a regiment at a time.

The Soviet operational maneuver group (OMG) is a second potentially ominous deep strike force. Fully combining arms, the OMG includes main battle tanks, infantry carried in BMPs as lethal as the BMD, organic self-propelled artillery and air defense, engineers to clear obstacles, chemical and reconnaissance elements, and a beefed up logistics tail.(5) Made up from regular line units, its size and actual structure vary with the situation and mission envisioned. It is capable of moving at least 15 kilometers an hour off-road. The OMG can either pass through breaks in the tactical line or infiltrate in dispersed groups through gaps to reconcentrate in the rear, and then speed to operational and strategic depths. Battalion-sized forward detachments and heliborne assault units based with the OMGs move in advance to seize key pivots of maneuver and clear obstacles to speed the OMGs' progress. Still, the OMG does have vulnerabilities. First, the tactical line must be broken or highly porous before the OMG can even launch. Secondly, it also depends on a favorable air situation to progress.

Can Soviet fire support systems provide adequate fires to these deep attack forces? The simple answer to the second issue is yes. Both the airborne units and the OMGs carry organic field artillery capable of ranging up to 20 kilometers. Likewise, both travel with their own air defense umbrella. Further, the Russians can assist in the destruction

of key targets, once identified and fixed, with long-range rocket fires. Army and front assets-- the SCUD-B, its replacement the SS-23 Spider, and the SS-12 mod 2 Scaleboard-- can range out to 900 kilometers.(6) Moreover, the Russians have worked out comprehensive, integrated programs of air support both to assist with air defense missions and to provide close support to their forces attacking behind enemy lines. Typically, helicopters will move with the columns, basing forward, while tactical aircraft will sortie from behind friendly lines in a primarily air defense role. Command and control for the integrated air and air defense support is invested with the maneuver elements.(7)

Although much improved, Soviet fire support to the forces attacking in the deep rear is not without weakness. Artillery for airborne units is still light in terms of numbers (30 tubes) and survivability. Ammunition is limited for both forces, therefore likely to be used sparingly. Moreover, Soviet air support is still too dependent on weather and daylight to be fully predictable.

However, the major factor limiting Soviet attacks in the far rear is the third issue, sustainment. Ammunition expenditure rates in modern combat are astronomical. The mobility of Soviet deep attack forces imposes an additional heavy toll in fuel consumption. For protracted combat in the rear, casualties must be extracted and replaced; etc. Thus accrues a heavy dependence on an air line of communications to an air head, and then helicopter and ground transport to the fighting force. To come close to sustaining engagements and

battles efficiently behind enemy lines assumes complete and continuous air superiority and supportive weather. Even then, the on-going proliferation of hand held air defense missiles makes air resupply a highly problematic endeavor. Moreover, with vulnerable lines of communication, some measure of the attacker's strength must be dissipated to protecting his own rear.

What then are the conclusions concerning the decisiveness of the modern threat to the deep rear? It seems Ivan can really hit our rear hard now if allowed. However, he can't hit everywhere. More importantly, he can't hit hard immediately, or indefinitely--he must still build up, or break through, and then sustain himself on very tenuous lines of support. Therefore, economy of force is still possible, but the risk must be carefully managed. The defense must be selectively thickened at the places most likely to be the object of his attack. Further, combat power provided in the rear must be agile enough to react quickly should the threat gain surprise in time, place, or strength of attack. Finally, but perhaps most importantly, the defense must retain an offensive element to strike the enemy when and where he is vulnerable, either defeating him outright or at least denying him the opportunity to exercise the initiative freely. The final portion of the analysis will examine the ability of US doctrine for defense in the rear to meet those challenges.

## MODERN REAR DEFENSE--

### HOW EFFECTIVE?

To obtain economy of force in the rear, Field Manual 90-14: Rear Battle leans heavily on the principle of self-defense. The doctrine terms it a base defense system. Rear units are gathered within perimeters, the bases, and charged to protect themselves. The principle of denial, though not required, is supported among other positioning considerations. The bases can be sited either to add protection to key facilities or terrain (e.g., locating reserve combat forces in supporting range of a critical airfield); or to reduce their own vulnerability (e.g., not locating nuclear storage sites or key command posts near possible landing zones or sites allowing quick access by the threat).(1) The base is expected to be capable of defeating agents, saboteurs, and terrorists and at least containing stronger attacks from decisive effect until reinforcements can react. Consistent with erroneous perceptions of the German rear defense, "no special equipment" is provided to do this. The bases are merely encouraged to plan carefully the placement of obstacles, mines, machine guns (a few heavy, most light), and light antitank weapons to obtain maximum impact.(2)

The bases are grouped in clusters for mutual support. A provisional commander is designated for the cluster. Each base organizes a reaction force, and the base cluster commander ensures the various reaction forces can cooperate. In addition, the base cluster commander develops an overall fire support plan. It is only conceptual, however, because

firing units, if committed to the rear at all, are given on order support missions solely.

Military police units patrol the expanse between base clusters and reinforce the defense of a base in trouble. MPs add automatic grenade launchers as well as a much higher density of light machine guns to the strength of the defense. (Division military police companies also have a scattering of hand held surface to air missiles.) Moreover, they are completely mobile in either trucks or the new high mobility multipurpose wheeled vehicle. When supplemented by military police units (normally platoons or companies), the base is expected to defeat reinforced company-sized raids by regular and irregular forces and further delay remaining types of attackers.

A tactical combat force (TCF) responds when the threat in the rear exceeds the combat capability of the MP and base defense forces. This is a fully combined arms force tailored against an expected or known threat. At tactical depths it is normally an on order mission for a unit already committed to the close-in battle. In the far rear, because of the range of operations, the FM recommends dedicating a combat unit to be a response force at the outset.(3) The unit can be either held out of the line temporarily or permanently assigned to rear defense. Additionally, some or all of the requirement could be met by a host nation, the likely scenario in Europe.

Fire support is an on order mission for the base defense, but either attached or in direct support to the TCF.(4) The doctrine uses the term fire support in its broadest sense, to

include field and air defense artillery, attack helicopters, and close air support. Field artillery is the primary fire support means in the tactical rear, supplemented by attack helicopters.(5) At tactical depths, artillery is generally capable of supporting both close and rear engagements from primary positions. On moving into the far rear, attack helicopters and close air support progressively replace artillery as an immediate fire support response. Artillery simply can't range through the depths of the deep rear without time consuming relocations. However, rear doctrine still calls for artillery to be brought to bear as rapidly as possible, due to its greater accuracy and ability to sustain massed fires.(6)

To focus the analysis, the doctrine envisions rear service and MP units containing an assault in the far rear by an airborne division or an OMG long enough for a TCF to respond and destroy it. Fires, probably attack helicopters or CAS, would be shifted to support the base defense system as rapidly as possible. Artillery would likely come into battle with the TCF. On the face of it alone, success of this defense seems improbable. The telling lessons from the German success on the Eastern Front are missing-- superior firepower integrated throughout the depth of the defense combined with aggressive offensive action whenever possible. Sadly, detailed analysis is no more reassuring.

The Soviets have a considerable firepower edge. Completely lacking organic fire support, a meaningful antitank capability, and armored mobility for local counterattacks, the

base is inadequately armed to defeat or meaningfully delay even the advance detachments of the mechanized airborne division and the armored OMG-- much less the entire attacking force. Even ideal terrain advantage won't override the immensity of the Soviet firepower advantage. Further, MP reinforcement does little to alter the imbalance. Military police units are no better equipped than the bases to combat mechanized and armored forces. Nor does the possibility, however likely, of early arrival of fire support promise much relief.

The Soviets won't launch an airborne or OMG strike without at least local air superiority. Moreover, both these deep attack units possess a credible air defense capability. Even if eventually penetrable, the threat air defense umbrella will initially divert friendly resources from sorties against the threat ground attack to counter-air and air defense suppression efforts. In the interim, the threat assault rolls on. Finally, effective air-ground support is complicated by a lack of target acquisition and fire control mechanisms in the rear. These exist nowhere outside the TCF.(7) Thus, until arrival on station of the TCF, efficient fire coordination and control is doubtful. In this environment, friendly air platforms offer little promise of quick relief to beleaguered bases. In short, the base defense system simply lacks the combined arms power to challenge a light or heavy armored assault.

Thus, security in the rear boils down to a race in time and space among several potentially decisive targets between

the attacking force and the TCF. Given the threat ability to pick the time and place of the attack and the passive nature of a doctrine which allows the threat free exercise of the initiative, the race is unlikely even to be close. And yet it doesn't have to be so.

Economy of force is still a valid doctrine for rear defense-- but the risk must be more carefully weighed. As stated earlier, the first condition for economy of force is minimum essential combat power in the area of risk to avoid decisive defeat. The Germans accomplished this on the Eastern Front through selectively fortifying critical points, blending aggressive offensive action into the defense whenever possible, and carefully weaving a competent fire support capability throughout the depth of the defense. These same tenets, when carefully matched against the vulnerabilities of the Soviet deep attacking forces, can prove successful today.

Self-defense, though not a critical element for the Germans in World War II, is the foundation for defense on the modern, non-linear battlefield.(8) But unless credible, the principle of self-defense has no value. Without a meaningful antitank and indirect fire capability, the base defense system is bankrupt. Shoulder fired, full armor piercing ATGM and-- in the absence of dedicated artillery-- mortars are a prerequisite for building a realistic self-defense capability. (Mortar units could be directly assigned, or attached from transiting or refitting units.) Additionally, denial must be a mandated principle of the doctrine rather than just an acceptable concept. Some units and terrain are simply too

critical to lose and impossible to reinforce rapidly. Therefore, the doctrine must demand more than self-defense at selective critical points. In fact, denying the enemy decisive success in some cases may dictate the use of combat forces in static defensive positions.

Moreover, fire support must be comprehensively integrated in the rear. Artillery must form its foundation. As yet, artillery remains the sole fire support system capable of all weather, sustained, accurate, massed fires. To begin integrating fires in the rear, a target acquisition and fire control capability has to be built into the base defense system. Then selective critical points must be given direct artillery support. (Again, either from transiting and refitting units, or by permanent assignment.) Finally, highly mobile artillery fires must be placed in general support of the rear. Currently, this may only be achievable by helicopter transported, towed 105 or 155mm howitzers. However, long-range missiles may offer an important supplement in the future. As missiles drop in size and cost, yet increase in range, accuracy, and control-- phenomena well supported by current technological trends-- they may become the least expensive and least manpower intensive means of increasing firepower for defense of the rear.(9)

Perhaps most important, the doctrine must gain an offensive element. By aggressively attacking the Soviets at their chief points of vulnerability, this can be done effectively and economically. The airborne strike is best defeated in the air, or when first assembling. US air

defenders are already preparing for the first task.(10) Giving hand held SAMs to military police units patrolling in the deep rear would greatly expand air defense coverage. A quick strike air assault force seems most appropriate to the second task. However, military police with mortar support and a credible ATGM can do much during the landings to keep the Soviets disassembled until the TCF arrives to destroy them. The OMG is best defeated by armored counterattack while still within tactical depths of the rear, an engagement outside the scope of this paper.

Should build-up be completed by the airborne force, or breakthrough achieved by the OMG, the situation can still be improved by aggressive offensive actions to harass their extremely vulnerable lines of air and ground communication. Reduced or threatened LOCs can of themselves delay the Soviet advance as well as dissipate their combat power. Military police armed as outlined above can appreciably threaten the LOCs. So too could friendly special operations units.(11) By either fixing or at least slowing and trailing the Soviet advance, these attacks would also help focus and then support the counterattack by the TCF.

The current US doctrine doesn't assure the defense of the rear against a modern Soviet threat. It is short the firepower and offensive spirit needed to see the job through. But its governing principle, economy of force, is not the problem. Accepting risk in the rear is still both feasible and necessary against a force as overwhelmingly resourced as the Soviet Army. At the same time, the degree of risk

accepted must not lead to disastrous consequences. Herein lies the failure of FM 90-14 : The doctrine salutes too quickly the Army's desire to concentrate combat power forward and pays too scant attention to the need to manage risk in the rear carefully. In short, the doctrine has a sound basis. It simply needs more balance.

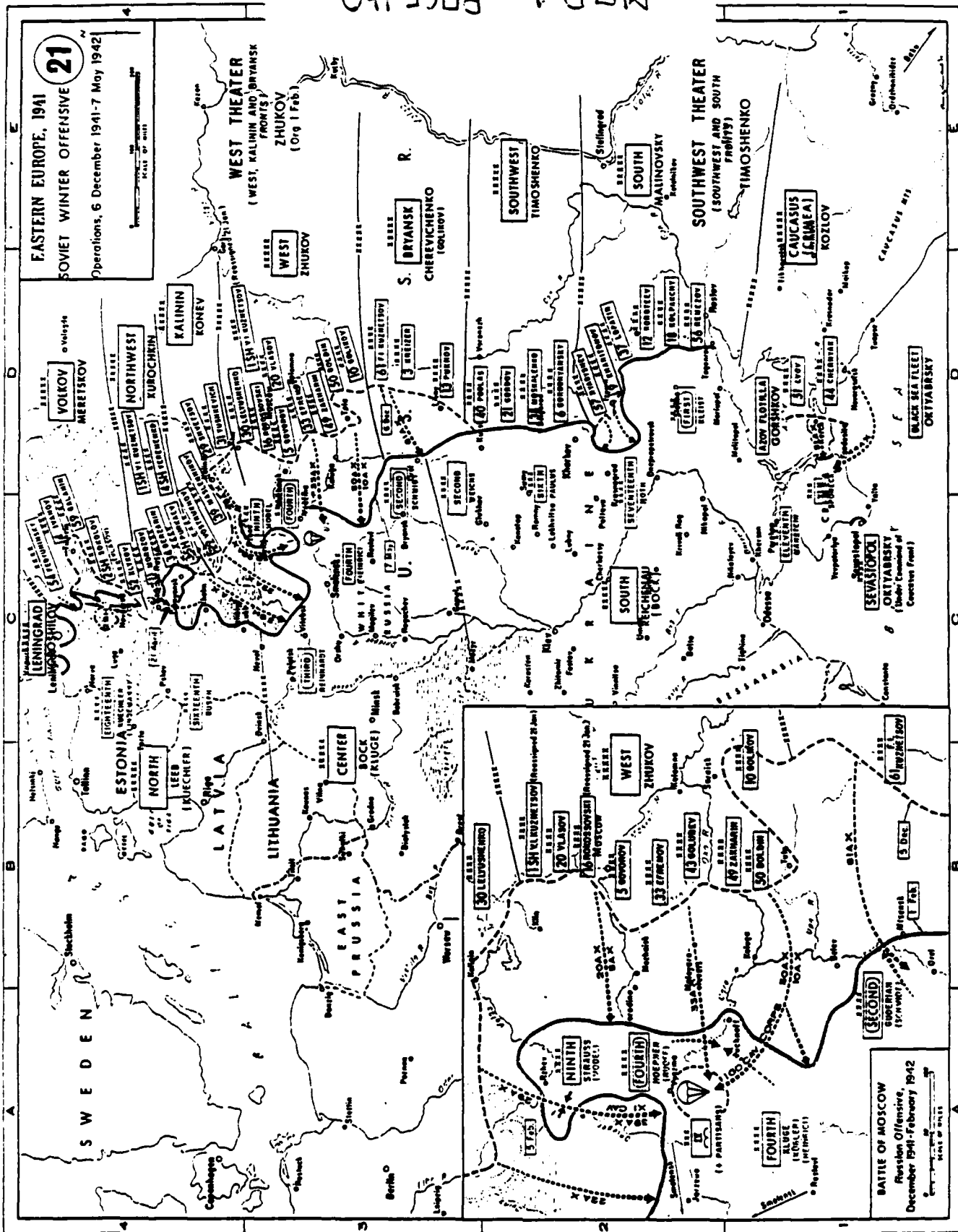
## CONCLUSIONS

The purpose of this paper was to challenge the capstone principle of US doctrine for rear battle, economy of force. Economy of force was tested by the degree of assurance the doctrine lends that a modern Soviet threat attacking in the rear can either be defeated or at least contained from decisive action until reinforcements can assist. The paper also sought to determine if the doctrine accurately reflects the tactics key to successful defense of rear areas in modern war. Case studies from the German Army's defense of its rear area on the Eastern Front in World War II, refined to consider changes in the modern conditions of war and current Soviet capabilities, were the primary source for successful rear battle tactics.

Several issues governing the proper use of economy of force were suggested that are not well expressed in FM 90-14. Most important among these principles is that the desire to concentrate combat power forward must be carefully balanced with the need to avoid defeat in the rear. In each study vignette, contrary to US doctrine, this required some measure of permanent commitment of combat units to the rear to protect critical terrain, or conduct critical operations. Further, while passive security as envisioned in US doctrine was essential to protect key terrain and units, launching aggressive offensive action as often as possible was necessary to rob the initiative from the forces attacking in the rear. Finally, the case studies disclose that fire support must be integrated throughout the depth of the defense. In some cases, artillery was placed in direct support of the defense

of selected critical points. In every case, highly mobile fire support systems were at least in general support, and capable of responding in a rapid, efficient manner.

The study suggests US doctrine for rear defense would not defeat or significantly delay a modern Soviet attack to our deep rear. Nevertheless, the basic principles of the doctrine are sound, simply out of balance. The overwhelming resources of the Soviet Army demand that economy of force be used to allow concentration at decisive points on the battlefield. But, one must remember-- the principle of economy of force turns on two subordinate tenets. The first, providing the minimum force in the area of risk necessary to stave off defeat is no less important than the second, concentrating the maximum combat power in the area of decision. For FM 90-14 to be fully functional, it must restore the balance between these tenets. This can be done by allocating a level of firepower to defend the rear commensurate to its threat and adding an offensive punch to the doctrine.



4th Pz Army  
33d Army  
4th Army  
30th Army

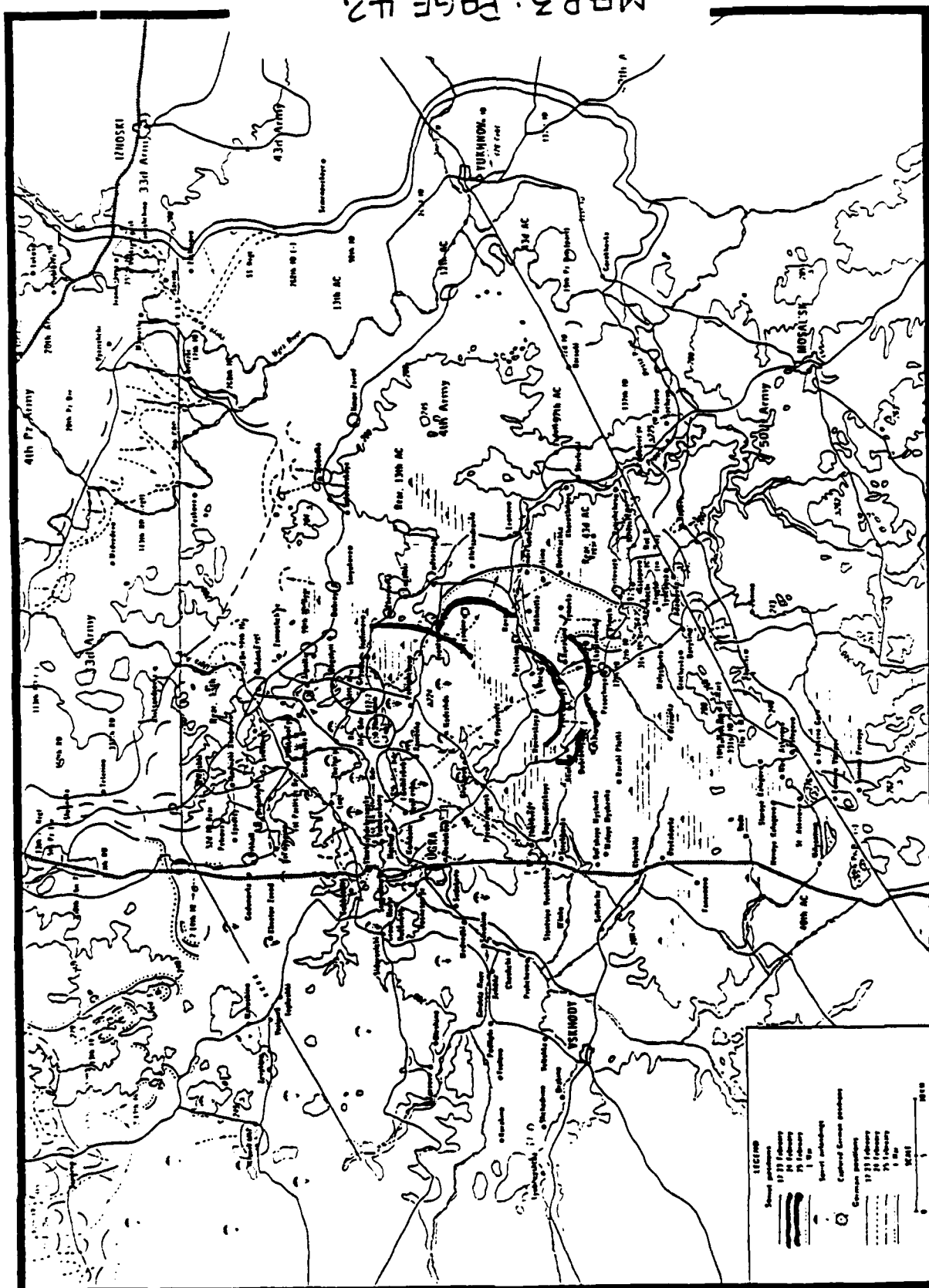
Red River  
Tonkin Gulf

Legend:

- Battle positions
- Terrain positions
- Planned military positions
- Planned military units
- Battlefields and destroyed areas

Scale: 0 to 100 km

Map 12 4th Airborne Corps Plan of Operations, 16 February 1942





## ENDNOTES

### CHAPTER 1: INTRODUCTION

1. US Army Combined Arms Center, "Focus on the Rear Battle," CALL Bulletin 2-86 (November 1986): pg. 7.
2. US Army Combined Arms Center, Field Manual 90-14: Rear Battle (Washington DC: HQDA, 1985), pg. 2-3.
3. Ibid., pg. 2-3.
4. Ibid., pg. 2-2.
5. Heilbrunn, Otto, Warfare in the Enemy's Rear (New York: Praeger, 1963), pg. 145.
6. The definitions of battlefield depth are taken from Soviet doctrine. Sources were: US Army Combined Arms Center, Field Manual 100-2-1: The Soviet Army, Operations and Tactics (Washington DC: HQDA, 1984), pg. 4-3, 4-4; Center for Army Tactics, Student Text 100-3: Battle Book (Fort Leavenworth: USCGSC, 1985), pg. 2-5; Bort, Major Roger E. "Air Assault Brigades: New Element in the Soviet Desant Force Structure", Military Review (October 1983): pg. 27, 28.

### CHAPTER 2: GERMAN REAR DEFENSE: 1941-1944

1. Howell, Edgar M., The Soviet Partisan Movement: 1941-1944 (Washington DC: OCMH, 1956), pg. 203.
2. Moskalenko, K.S., Na Yugozapad Nom Napravlenii [In the Southwest Direction] (Moscow: Voennoe Izdatel'stvo, 1972), pg. 122-- as cited by Glantz, LTC (now Col) David M., The Soviet Airborne Experience (Fort Leavenworth: USACGSC, 1984), pg. 59.
3. Reinhardt, Major General Hellmuth a. D., et al, Russian Airborne Operations (Washington DC: OCMH, 1945), pg. 32, 33.
4. Glantz, pg. 64.
5. Ibid., pg. 66.
6. Ibid., pg. 65.
7. Reinhardt, pg. 29.
8. Ibid., pg. 15.
9. Glantz, pg. 86.
10. Howell, pg. 47-50, 78, 83, 137, 140, 180.
11. Ibid., pg. 67, 151.

12. Office of the Chief of Military History, DA Pamphlet No. 20-230: Russian Combat Methods in World War II (Washington DC: HQDA, 1950), pg. 106; Howell, pg. 66.
13. Howell, pg. 67.
14. Hixson, LTC John A. and Dr. J. Lewis, Handbook of Organizational, Equipment, Armament and Technical Data: US and German Army Units, World War II (Fort Leavenworth: USACGSC, 1986), pg. 43. See also Office of the Chief of Military History, DA Pamphlet No. 20-240: Rear Area Security in Russia, the Second Front Behind German Lines (Washington DC: HQDA, 1951), pg. 5.
15. Dixon, Brigadier C. Aubrey and Otto Heilbrunn, Communist Guerrilla Warfare (New York: Praeger, 1954), pg. 113-116; Howell, pg. 67, 68.
16. Dixon and Heilbrunn, pg 114; Howell, pg 212.
17. Howell, pg. 73, 87, 148.
18. DA Pamphlet No. 20-240, pg. 5; Howell, pg. 13.
19. Heilbrunn, Otto, Partisan Warfare (New York: Praeger, 1967) pg. 126; Howell pg. 199.
20. Dixon and Heilbrunn, pg. 160; Howell, pg. 117.
21. Dixon and Heilbrunn, pg. 162; Heilbrunn, Partisan Warfare, pg. 100.
22. Air power could be effective against partisans, but only when heavily massed and if the partisans were somehow fixed. Not all anti-partisan activities could justify the number of aircraft required. Moreover, the noise and high visibility of the airplanes tended to disclose the attacks prematurely, allowing the partisans to escape. Therefore, airplanes were not the main fire support component in the German rear defense. See Dixon and Heilbrunn, pg. 160, 161 and Heilbrunn, Partisan Warfare, pg. 126.
23. Dixon and Heilbrunn, pg. 161, 162; Heilbrunn, Partisan Warfare, pg. 104, 105.
24. DA Pamphlet No. 20-230, pg. 109, 110; Dixon and Heilbrunn, pg. 158, 162.
25. Howell, pg. 149, 150.
26. Ibid.: 60,000 men, Map 6 "Partisan Concentrations in Sector of Army Group Center"; 137,000 square miles, pg. 73; track and road network length, pg. 172.
27. Ibid., pg. 174.

28. Koupak, Major General S.A., Our Partisan Course (London, 1947), pg. 81-- as cited by Heilbrunn, Partisan Warfare, pg. 136.

29. The Assault of the Dnepr, September 1943, was the other major airborne operation. The results were similar to those at Vyaz'ma. See Glantz, pg. 91.

### CHAPTER 3: THE MODERN THREAT IN THE FAR REAR-- HOW DECISIVE?

1. Heilbrunn, Warfare in the Enemy's Rear, pg 155.

2. Air strikes have historically been less predictable as a means of fire support. They are affected by relative air superiority, weather, levels of visibility, air defense belts, and centralized planning cycles difficult to influence quickly should the situation change. Moreover, despite the comment in Communist Guerrilla Warfare on the accuracy of the RAF (pg. 160), air support has largely been an imprecise tool-- compensating for its ability to produce tightly controlled fires by striking in mass and saturating the target area. (Admittedly, the advent of smart munitions is improving the accuracy of air to ground fires.) Furthermore, air support has not been continuous through the course of the battle. The heavy massing of its fires can only be sustained for a limited periods before the planes must return to bases and refuel and rearm. This is not to diminish the important role of air in combined arms warfare. Air power offers a tremendous range, target acquisition capability, and speed of response not available from other means. It is simply to underscore the limits of air support to the ground battle.

3. The 120mm mortar howitzer is a recent addition to the Soviet airborne capability. For precise capabilities see Johnson, Glenn T., "The 120mm SP Mortar Howitzer", Armor Magazine Vol xciv No. 2 (March-April 1986): pg. 20.

4. Crutcher, Maj Michael, "The Soviet Airborne Division", Review of the Soviet Ground Forces (Washington DC: DIA, March 1980), pg. 3-- as cited in Bort, pg. 23, 37.

5. Hines, John G. and Phillip A. Petersen, "The Warsaw Pact Strategic Offensive: The OMG in Context", International Defense Review No. 22 (October 1983): pg. 1393.

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7. Hines and Petersen, pg. 1393.

#### CHAPTER 4: MODERN REAR DEFENSE-- HOW EFFECTIVE?

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2. Ibid., pg. 4-4.
3. Ibid., pg. 7-3.
4. Ibid., pg. 3-21, 6-3.
5. Ibid., pg. 5-3.
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7. US Army Field Artillery School, Field Manual 6-20: Fire Support in Combined Arms Operations, (Washington DC: HQDA, 1984), pg. 4-40.
8. US Army Combined Arms Center, Field Manual 100-5: Operations, (Washington DC: HQDA, 1986), pg. 2.
9. For a look at the effect of modern weapons on the battlefield, see Barnaby, Frank, "How the Next War Will Be Fought", Technology Review Vol. 89 No. 7 (October 1986): pg. 27.
10. As an adjunct to this study, the author examined the degree of integration of rear battle doctrine in the tactical and training manuals of fire support elements-- tactical air, attack helicopters, air defenders, and artillery. Air defense doctrine indicated a well thought out and rehearsed capability to perform the rear battle missions falling to air defenders.
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1. MAP 1. Atlas for the Second World War: Europe and the Mediterranean, ed. Thomas E. Griess (Wayne NJ: Avery Publishing, 1985), pg. 21.
2. MAP 2. Glantz, pg. 213.
3. MAP 3. Ibid., pg. 220.
4. MAP 4. Ibid., pg. 221.

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